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ABSTRACT

An experiment was conducted in which the story schema, an idealized representation of the parts of a typical story and the relationship among those parts, was derived inductively by examining a large number of actual published stories to extract their common properties. In addition to developing a schema that simultaneously defines the essential nature of stories and represents the psychological reality of story characteristics for readers, the project also sought to improve on previous story schema research by avoiding the use of self-generated or adapted stories or fairy tales. To minimize the possibility of subjects' previous familiarity with the stories, relatively obscure works were selected. Forty students were chosen from three classes of an undergraduate education course to assure a minimum reading and writing competence among the subjects. Each reader was asked to read and then retell one of the stories. The retelling was then analyzed to determine the degree to which it reproduced the schematic elements as they appeared in the original text of that story. The findings indicated: (1) strong support for the accuracy of the tested schema as representing the cognitive framework that readers use to interact with stories, (2) that retelling is superior to probing for "real" stories, (3) that the traditional category of "setting" is not indigenous to stories in the same way that the other schematic properties are, and (4) that stories vary in schematic density. (HOD)

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Investigating the Psychological Reality of
Generic Characteristics of Short Stories

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Running Head: Generic Characteristics

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Investigating the Psychological Reality of
Generic Characteristics of Short Stories

What literary critics have for a long time been calling the "generic approach" to short stories has recently attracted the interest of psychologists investigating "schema theory." A development of cognitive psychology, schema theory postulates the existence of data structures built into human cognition. Termed "schemata," these structures represent generic concepts summarizing that which is common to a large number of situations. One such generic concept is that of a "story schema," defined by Mandler and Johnson (1977) as "an idealized representation of the parts of a typical story and the relationships among those parts" (p. 111). As such, a story schema represents the expectations with which readers approach a story: the properties which they expect a story to possess and the bases on which they determine whether a passage is or is not a "story." These internalized properties may be thought of as deep structure slots to be filled in by available surface structure content from the literary work. In this sense, comprehension may be regarded as the extent to which a reader can fill his internalized slots (e.g., protagonist) with information from the text (the identity of the specific story character fitting this slot) and the extent to which these slots are able to account for textual material. That is, the degree to which slots and available material match is the degree to which one understands the material. Since a story schema is, then, an internalized cognitive device which facilitates

comprehension, it is a psychological phenomenon and may be investigated by psychological research.

However, in spite of these similarities, each discipline has a different emphasis: literary criticism is concerned specifically with the nature of stories themselves, and psychology is concerned primarily with the interaction between readers and stories. Because of these different emphases, psychologists investigating story schema have not taken advantage of the abundant background information available in literary scholarship. A multidisciplinary approach, seeking to integrate the contributions of both groups, seems the most promising means of developing a schema which simultaneously defines the essential nature of stories and represents the psychological reality of story characteristics for readers. It is the purpose of the present study, first, to design a schema by synthesizing the several schemata with one another as well as with models from traditional literary criticism and, second, to test that schema for verification and modification. Such testing should be done according to the rigorous standards of psychological research techniques.

The theoretical rationale for schema theory, however, lies neither in literary criticism nor in psychology but in a discipline antecedent to both—philosophy. From its inception philosophy has maintained a keen interest in the nature of knowledge and in the means by which knowledge is acquired (epistemology). It was, in fact, a philosopher who first used the term "schema," Immanuel Kant in The Critique of Pure Reason (1781). Not only did Kant use the term in a way that anticipates the modern usage, but he also is responsible for that idea which anchors contemporary

psychological schema theory: that comprehension is a result of both external and internal factors. That is, external stimuli must be organized conceptually by the mind in order for comprehension to occur.

But while philosophers from the time of Plato have been concerned with the general question of schemata, literary analysts have concentrated more on the structural analysis of literary units. A tradition traceable to Aristotle, "generic criticism" has sought to distinguish among various classes of works by identifying the essential internal components common to all works in each class. The formal analysis of that genre called the "short story" is a product of comparatively recent critics (Freytag, 1863/1969; Poe, 1842/1959; Matthews, 1901). Such critics have not been much interested, however, in the troublesome matter of the psychological reality of the generic properties they defined. Their interest lay in the text itself, not in the reader of that text.

It remained for psychology to evolve such an interest in the reader and the relationship between the text and his/her comprehension of it. Antecedent to current research in story schema were such theorists as Piaget (1926), Bartlett (1932), and Ausubel (1963, 1968)--all of whom contributed to the foundation of schema theory. Several prominent researchers have advanced schema models of stories: Rumelhart (1975), Thorndyke (1977), Mandler and Johnson (1977), and Stein and Glenn (1975, 1979). Most research which has been done on story schema has utilized one or another of these models. However, all of these schemata share the basic weakness that none has been convincingly demonstrated by empirical

research to be reflective of the strategies by which readers comprehend stories. In fact, most research has not been directed toward gathering such evidence at all but toward some more specific and limited goal while assuming the accuracy of the employed model. (Thorndyke, 1977, for example, uses his version for an investigation into the story property of "theme"; the Thorndyke model itself, however, has never been empirically substantiated.) Such research must be regarded with some skepticism.

Development of the Schema

In order to develop an initial "best-guess" schema to be tested empirically, it was necessary to be thoroughly aware of the shortcomings of the existing models. A review of these story grammars revealed that the various psychologists proposing them have, to their detriment, disregarded insights fashioned by literary critics. Since it seems highly probable that readers acquire their internalized schema for stories from repeated contact with stories, it seems reasonable that the best starting point for developing a construct of such a schema is that same point at which individuals themselves begin: with stories and their commonalities. The best source of such insight would seem to be literary criticism, which has always been concerned with precisely this issue. Thus, the researchers' general unfamiliarity with literary criticism ignores a valuable source of available information. This fact accounts for the chief weakness of the psychological models: that they and their designers display an imperfect knowledge of the story itself as a literary genre.

One especially important difference lies in the distinction (ignored

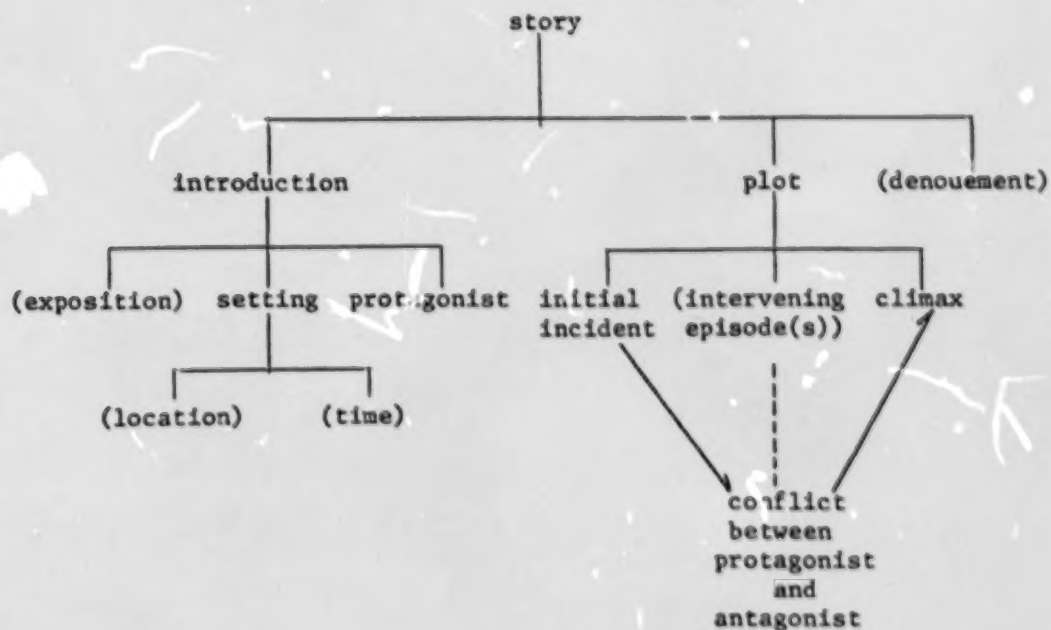
by psychologists) traditionally made by literary critics among the episodes of a short story. Unlike the psychological theorists, who have dealt only with the concept of "episode," literary scholars have always identified some episodes as more structurally central than others: specifically, an initial incident and a climax. Assuming that readers are sensitive to these distinctions and absorb them into their comprehension process, the incorporation of this insight into the new model should produce a superior schema.

Furthermore, most of the research based on these models has employed stories either generated by the schema itself or regularized to correspond to the schema. The subtle fallacy of circular reasoning arises at this point since the test material is not independent of the desired experimental result and any schema can be made to seem accurate when the stories are designed to conform to it. A related problem is that in their desire to exercise controlled conditions researchers have resorted to the contrivance of unnatural stories. The artificiality of such stories does indeed provide a high degree of experimental control but little if any generalizability to real stories. If the purpose of such research is to map the structures of the mind, then it is necessary to remember that writers write and readers read real stories, and that a study based on artificial, over-simplified stories will result in an artificial, over-simplified version of the mind. Still another weakness lies in the fact that all of the schemata to date have been, intentionally or unintentionally, prescriptive in nature, seeming to dictate what the nature of stories should be rather than to discover what it is.

Thus, for this experiment the initial schema was derived inductively by examining a large number of actual published stories to extract their common properties. The intent was a genuinely descriptive model which should describe as accurately as possible the genre as it exists and is practiced by serious writers, not a formula by which to generate stories. So the present schema was carefully synthesized from the generic models of literary critics and the various psychological models in the hope that taking advantage of the contributions of both fields of study would result in a superior narrative grammar. Such a schema would also offer broader coverage than other versions which have been limited to extremely simple self-generated stories or to equally simple folk or fairy stories. This model would, by contrast, be suitable for most traditional stories by professional authors.

Schema for Simple Short Story

Initial Version



Schema Rules

Story: introduction $\longleftrightarrow$ plot $\longrightarrow$ (denouement)

Introduction: (exposition) + setting + protagonist

Setting: location + time
 location + (time)
 (location) + time

Plot: initial incident $\longrightarrow$ (intervening episode(s)) $\longrightarrow$ climax

Key

- 1) Parentheses indicate an optional element; a dotted line indicates an optional relationship.
- 2) + indicates a subdivision of elements without a specific ordering.
- 3) $\longleftrightarrow$ indicates simultaneity and should be read "is simultaneous with."
- 4) $\longrightarrow$ indicates a progression with a specific ordering and should be read "is followed by."
- 5) $\longrightarrow$ indicates a causal relationship and should be read "is the cause of."

Elements of the Schema

1. Protagonist - the central character in the story, the one to whom the events of the story happen
2. Location - the spatial or geographical boundaries of the story as identified in the introduction
3. Time - the temporal context identified in the introduction of the story as the frame within which the events of the story take place; it is the period which for the story is to be regarded as the "present"
4. Exposition - the depiction of the initial state of affairs in the story antecedent to the conflict; it consists of background information concerning the situational context for the initial incident
5. Initial Incident - the episode in the story which brings the protagonist into conflict with the antagonist, the occurrence which produces a conflict

6. Conflict - the main character's central problem in the story, the opposition between the protagonist's desires and the agents in the story (antagonist) which impede the fulfillment of those desires
7. Climax - the episode in the story which determines the outcome of or resolves the conflict, that episode which tells whether the protagonist solves his problem
8. Denouement - any event of significance which occurs in the story subsequent to the climax

Selection of the Stories

The project also sought to improve on previous research by avoiding the use of self-generated or adapted stories (since these would invariably produce the fallacy of circular reasoning) and fairy tales (which were judged to be too limited to allow meaningful conclusions). Natural stories by well-known professional writers seemed to offer the greatest likelihood of gaining valuable insights into the way readers interact with short fiction. To minimize the possibility of subjects' previous familiarity with the stories, relatively obscure works were selected. Originally 172 stories by 131 different authors were examined, and six were eventually chosen. These were submitted for final scrutiny to a panel of four raters, who selected "The Jewbird" by Bernard Malamud, "The Man of the House" by Frank O'Connor, "The Foreigner" by Francis Steegmuller, and "Prelude to Reunion" by Oliver La Farge as clearly suitable to the proposed research.

Selection of the Subjects

To assure a minimum reading and writing competence among the subjects, the researcher determined to use juniors and seniors at the University of

North Carolina at Chapel Hill. English majors were disqualified since they have been formally trained to interpret literature in certain self-conscious ways and data from their reactions may not be applicable to general readers. Therefore, 40 students distributed among three classes of an undergraduate education course were selected, and participated during class time and as part of their class work. Since it was fortunately possible to test all three classes on the same day, they were treated as a single group.

Use of Generic Questions

Basically each reader would be asked to read and then retell one of the stories. The retelling would then be analyzed to determine the degree to which it reproduced the schematic elements as they appeared in the original text of that story. It was possible, however, that a subject might have comprehended and had available in his or her recall a schematic element of the story but neglected, for whatever reason, to include it when asked to retell the story. To determine whether this were the case, the researcher devised a series of eight generic questions corresponding to the eight story components defined by the schema. Requiring a subject to answer these questions subsequent to the retelling task would make it possible to determine whether he/she omitted a particular element because he/she did not remember it or omitted it even though the information was apparently available in memory. The order of the questions corresponded to the order of elements in the schema but avoided any critical or ambiguous terminology. (The schema property

appears in parentheses after each question; this parenthetical information was not presented to the subjects.)

1. Who is the main character in the story? (protagonist)
2. Where does the story begin? (location)
3. When does the story begin? (time)
4. What is the state of affairs as the story begins? (exposition)
5. What is the first important episode in the story? (initial incident)
6. What is the main character's central problem in the story? (conflict)
7. Which episode tells you whether the main character solves his/her problem? (climax)
8. Does any important event take place after the problem is resolved?
And if so, what is it? (denouement)

Procedure

Standard practices and controls for psychological research were followed rigorously. To conserve space, only the major features of the design are summarized here. One of the four stories was randomly assigned and presented without title or author to each subject, who was instructed to read it at his/her own pace for retelling. After the texts had been retrieved, the subjects engaged in a brief unrelated task to clear short term memory; then they were asked to write a free recall reconstruction of the stories. This method, which avoided imposing a selection system on the readers, was judged to be the best key to their spontaneous comprehension of the texts. These recalls could then be compared to the schematic versions of each story in order to evaluate the extent to which

subjects appeared to have comprehended the passages according to the schema. Following the collection of these retellings, the generic questions were distributed and subjects instructed to respond to these.

Analysis of Data

After all the data had been collected, the retellings and the generic answers were scored by comparing them to the proposed schema. Attention was given both to whether the retellings reproduced each of the eight elements and to how accurately each was represented. Answers to the generic questions were similarly scored. (Customary checks for interrater reliability were made.) The raters were provided with prior codifications (done by the researcher in consultation with the dissertation director) of the stories in terms of the schematic elements with which they could compare the subjects' work. As an example, one such codification is given below.

Schematic Codification of "Prelude to Reunion"

1. Exposition—the depiction of the protagonist in his dormitory room preparing to take a walk
2. Location—a college dormitory room
3. Time—during the school year, spring, evening
4. Protagonist—college student named Matterson
5. Antagonist—Farraday and his tactics to get money
6. Initial incident—Bill Farraday's arrival at Matterson's room
7. Climax—Matterson's decision to contribute ten dollars
8. Denouement—Matterson's reaction to his decision: pride and a sense of calamity

Although a seven category classification system for the subjects' responses was originally used, a subsequent syncretism into a binary system proved more useful in analyzing this data. That is, each response was judged either to support the schema by corresponding to it or not to

support the schema by diverging from it. A response of the former type was coded 1; a response of the latter type, 0.

Each subject produced two responses to each of the eight schematic elements, one in his/her retelling and another in his/her answer. Thus, each of the 40 subjects generated eight sets (corresponding to the eight elements of the schema) of paired responses, a total of 320 such pairs. Each pair could be classified as one of four types:

1. support for the schema in retelling but not in answer (0,1)
2. support for the schema in answer but not in retelling (1,0)
3. support for the schema in both retelling and answer (1,1)
4. support for the schema in neither retelling nor answer (0,0)

This information could be depicted graphically in a table. (See Table 1 in the Appendix following the text.)

Of the 320 paired responses, 236 (73.75%) contained accurate (i.e., schema-supporting) answers to the generic questions; by comparison, 288 (90%) contained accurate information in the retellings. Comparing these figures suggests that asking subjects to retell a story produces better recall than asking subjects to reply to even carefully designed probe questions. These results were surprising since it was expected that questions would generate superior recall. It can also be inferred that approximately 25% of the subjects who knew the schematic information about their stories (because they included it in their retellings in the appropriate schema slots) were unable to produce it in response to specific queries. For example, some subjects retold their stories using the correct

central character but when asked specifically to identify the central character could not do so, either leaving the slot blank or substituting a minor character. These facts were judged to be strong evidence in support of the schema as a retrieval device and, insofar as comprehension can be inferred from recall, evidence for the operation of the schema in the process of initial comprehension as well.

Computing a phi coefficient produced a low correlation of .062 across the four cells of Table 1, intimating a very minimal relationship between story recall as measured by retellings and as measured by generic questions; the response a subject made to one was not an accurate predictor of how he/she would respond to the other. In summary, then, the calculated phi coefficient suggests that retellings and generic questions measure different dimensions of story comprehension and, therefore, are not together an effective mechanism; and the percentages (90% as compared to 73.75%) indicate that free retelling is the superior recall device.

A similar analysis was done for each of the four stories (see Table 2 in the Appendix for an example), and the results reflected the general data. In each case, schema elements were better reproduced in the subjects' retellings than in their replies to the generic questions. Furthermore, a phi coefficient for individual stories also confirmed the lack of relationship between retellings and generic answers.

Schematic Density

Because certain differences emerged in subjects' treatment of the

four stories, the texts were investigated to identify factors which might account for these differences. Readability was computed to determine whether it was a factor affecting the data. Using the Fry (1977) Readability Graph, it was found that all four stories fell within a fifth to seventh grade level distribution. This range was judged to be of little importance in affecting the responses in this experiment since all subjects were believed to be capable of dealing with printed matter on this level.

Ultimately, it was the nature of the response differences themselves which provided the best clue to an explanation of the phenomenon. The primary difference to be accounted for involved the length of subjects' retellings. Since natural stories were used and only loose constraints placed on length, the number of words per story ranged from 1,316 to 3,437, the average length being 2,362. The average length of the retellings was 443.1 words. Table 3 in the Appendix reveals, however, that there was no direct correlation between the length of a story and the length of a subject's retelling. That is, the shortest story ("The Foreigner") did not require the fewest number of words to retell, nor did the longest ("The Man of the House") require the greatest number. In fact, surprisingly, the shortest story needed the greatest number of words to retell (507.2), an average of 38.5% of the original length (compared to an average across the four stories of 18.8%).

It would seem that the retellings were affected by factors other than length or readability of the original stories, that the number of words

required to retell a story cannot be predicted by the story's original length. To account for this fact, it was postulated that stories vary in "schematic density"—the concentration of schematic elements. Thus, a "schematically dense" story is one with a high ratio of schematic content to total content, and a "schematically diffuse" story would be one with a high percentage of non-schematic content. In dense stories there would be little for readers to dispense with when instantiating (fitting textual data into abstract schematic slots) and little to omit when retelling. According to this reasoning, the most direct measure of schematic density would be a comparison of retelling length to original length. So "The Foreigner," with a 38.5% figure of retelling length to original length, would be termed schematically dense; and "The Jewbird," with a figure of 12.9%, would be schematically diffuse.

A standard deviation was calculated for the retellings of each story to determine how much variation in length existed among each set of retellings. It might be expected that the schematic density of a story and the standard deviation for the retellings of that story will vary indirectly: reasoning that a story with little non-schematic content would provide fewer possibilities for variations in retelling, a low standard deviation may suggest high schematic density. The standard deviations in the present study support this hypothesis (see Table 3). "The Foreigner," for example, displayed the lowest standard deviation (114.98).

Another figure of interest is that representing the discrepancy

between correctness of retelling responses and generic answers. For example, in "Prelude to Reunion" the percentage of correct responses in retellings was 89.77% and the percentage of correct responses in the generic answers was 64.77%, a difference of 25%. Computing such a figure for each story yielded the following results:

"The Foreigner"	3.41%
"Prelude to Reunion"	25.00%
"The Jewbird"	23.61%
"The Man of the House"	13.89%

Average	16.48%
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Once again "The Foreigner" was distinctive since it displayed the least discrepancy between retelling and generic answers. It may be speculated that stories high in schematic density might exhibit minimum difference in accuracy between the two recall tasks since there is relatively less non-schematic content to confound both cued and non-cued measures.

In summary, then, considerable evidence for the existence of schematic density as a property of stories exists. Nevertheless, it should be stressed that this concept is a matter of post hoc speculation since the study was not designed to test for it. So until research can be designed to collect empirical evidence confirming its reality, the matter of schematic density remains tentative.

Analysis of Individual Schema Elements

Since one of the purposes of the project was to improve the design of the schema to reflect as accurately as possible the internal construct

actually employed by mature readers, further analysis of the data was undertaken with this specific objective in mind. To specify those constituents requiring revision, an element by element analysis was necessary. Each of the eight components was studied separately. The results of this study are summarized in Table 4 in the Appendix. It can be seen that most of the elements behaved as expected, with the retellings providing greater accuracy than the generic answers. The elements of Location and Time, however, were exceptions to this general tendency.

Further analysis of the larger component of Setting revealed that, while only 52.5% of the subjects responded accurately in their retellings to both Time and Location, 97.5% do so for at least one of these two elements. That is, only a single subject failed to offer any information whatsoever about Setting. Similarly, when answering the generic questions for Time and Location, 82.5% of the subjects replied accurately to both questions. However, all subjects produced acceptable information to one or the other (or both) of these questions. In summary, therefore, it seemed that the subjects did display some sensitivity to the conditions of Setting in the stories they read. Whereas most apparently knew the specifics of Time and Location, as evidenced by the ability to answer accurately the generic questions, many failed to volunteer this information when reconstructing the stories as if for an audience. It might be conjectured that the subjects evidently felt that the complete details of time and place were not essential to an understanding of the stories. This insight has not been uncovered by any previous research into story schemata.

Such research has tended to concentrate on such properties as "theme" (Thorndyke, 1977), "episode" (Rumelhart, 1975; Mandler & Johnson, 1977), or "resolution" (Thorndyke, 1977) while ignoring supposedly self-evident matters like "setting." The results of the present study strongly suggest that this unequal distribution of attention has been unjustified. It has always been intuitively apparent to critics and teachers of short stories that the element of setting does not have quite the same sine qua non status that other elements do. Nevertheless, because it is also intuitively obvious that verisimilitude demands that a story must be conceived of in terms of time and space, this difference has been ignored; and students have continued to be taught that a story includes a protagonist, a setting, an initial incident, etc.

A story schema is composed of an organization of elements requisite to a story. As such, it is a device that enables persons to discriminate passages which are stories from passages which are not. The traditional ingredients of Setting seem not to do this, and the evidence suggests that the factors of Time and Location may not be among the indispensable elements. The subjects participating in this experiment appeared not to feel obligated to inform their imaginary audience of the details of Setting (as traditionally defined) to the same extent that they felt obligated to specify the details of Protagonist, Exposition, Initial Incident, Conflict, Climax, and Denouement.

Kant's (1781/1952) philosophical analysis of time and space as fundamental, a priori dimensions of human comprehension offers an explanation for these data. The claim of the Kantian "transcendental aesthetic,"

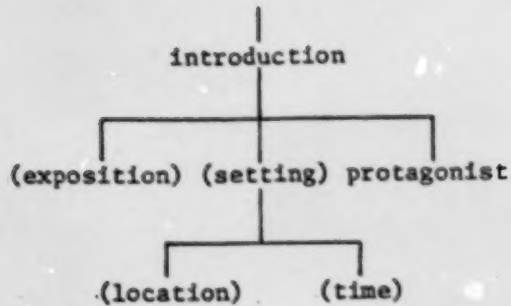
that it is impossible to conceive of anything outside the loci of time and space, enforces the omnipresence of these qualities for all perceptible reality. Although they are not a part of external reality in Kant's view, they are a priori conditions of perception and are, therefore, invariably imposed onto all experience. Thus, even passages which are not stories must be assumed to have a "setting," i.e., to occur in time and space. From this perspective, then, both stories and non-stories are indistinguishable on the basis of such a restricted definition of setting.

It would now appear that this original definition is an oversimplification and needs to be reconsidered. Such a reappraisal might best begin with a review of the basic nature of the story form itself. The elements form, for the most part, a causal pattern; e.g., the "initial incident" leads to the next episode which in turn leads to the next until the arrival of the "climax." Traditionally, in fact, the notion of plot has been described by literary scholars as a series of events causally related. Each episode is simultaneously the effect of the preceding episode and the cause of the succeeding one. The setting (the temporal and geographical boundaries of a story) may be integrated into this causation but may also be independent of it. That is to say, the setting may be a factor precipitating the initial event, or it may be only partly responsible for this event (by permitting but not actually causing the occurrence), or it may be entirely incidental to the episode. This implies that while the element of setting is a requirement of all stories (and indeed of all things) it is not of equal prominence in all

stories. It would seem likely that the relative prominence of the components of time and place is a function of their integration into the pattern of causation which is the structuring principle of the story.

Setting may certainly be a component of a story schema; however, it is not merely a condition of time and space but only as these features allow readers to infer the relevant cultural, social, and moral climate of the story. Therefore, a revised definition of Setting is in order: the Setting, to be inferred from the designation of temporal and spatial contexts, is that collection of static factors in the physical, moral, psychological environment which increase or decrease options for characters' actions. The definitions of Time and Location are modified to reflect this change. Location becomes defined as "the spatial or geographical boundaries of the story as identified in the introduction and as these factors affect the characters' behavior and limit their options for action." Similarly, Time is now defined as "the temporal context identified in the introduction of the story as the frame within which the events of the story take place, insofar as this context affects the characters' behavior and limits their options for action; it is the period which for the story is to be regarded as the 'present.' "

Of course, such a modification in definition necessitates a corresponding revision in the design of the schema itself. Diagrammatically, this change is simple to incorporate, requiring only the insertion of parentheses around the term "setting" whenever it appears as a constituent of the Introduction. Thus,



And

Introduction: (exposition) + (setting) + protagonist

Conclusions

This study was a rigorous attempt to bring into sharper focus the concept of story schema and to devise and test a specific schema. This effort was based on the examination and synthesis of the various contributions to schema theory made by three separate disciplines: philosophy, literary criticism, and cognitive psychology. Such a multidisciplinary approach strengthened the project by overcoming those weaknesses of earlier investigations which resulted from the reluctance to consider insights uncovered by other fields. Nevertheless, certain limitations remain to be acknowledged. Although the study was superior to earlier studies in that it relied on "real" stories rather than contrived ones, it was possible to use only four different stories. Such a small number of narratives clearly cannot possibly be representative of the full range and diversity of short fiction. Thus, care must be taken not to overgeneralize the results. It must also be remembered that the interaction of subjects with stories was entirely visual rather than auditory and oral. That is, each subject functioned as a reader/writer

and not as a listener/speaker. Whether the results would have been identical if the subjects had been asked to listen to a recording of the stories and to retell the stories aloud is uncertain. The study makes no claim to generalize to such a mode. The decision that the role of subject should be one of reader/writer was based on the belief that this is the dominant mode of story interaction in literate societies.

Assuming that the limitations of the study were comparatively minor, however, some tentative conclusions can be drawn. Specifically, four major findings can be claimed from this study.

Support for the revised version of the proposed story schema is claimed. The data provide strong evidence for the accuracy of the tested schema as a representation not merely of the story form itself but of the cognitive framework which readers use to interact with stories. The data indicate that 90% of the schema elements were accurately included in the recalls across 40 subjects and four stories. This is an impressive figure considering the large source for variance. The initial strength of the schema derived from its origin as a synthesis of philosophical, literary critical, and psychological insights. Revisions based on the interpretation of the data were consistent with the philosophical (especially the Kantian) framework anchoring schema theory. These revisions are believed to strengthen the model even further. The educational implications of this central finding are straightforward: the schema may provide an instructional tool for use in directing students' interaction with stories (McDonell, 1978). It seems likely that formal instruction in the schema may enhance students'

ability to comprehend narratives, especially those students whose naturally acquired story schema is deficient.

The data furnish strong evidence that retelling is superior to probing for "real" stories. The subjects demonstrated a 90% accuracy rate across all schematic elements in their free recalls but only a 73.75% rate in the responses to the generic questions. It seems more likely that a subject's knowledge of a story's protagonist, for example, can be more accurately assessed by directing the subject to retell the story and observing whether he/she includes the appropriate information than by asking a specific question such as "Who is the main character in the story?" This may be analogous to the linguistic situation in which a subject who is unable to label the parts of a sentence such as subject and verb, will, when asked to construct a sentence, automatically include those components in proper fashion.

The evidence intimates that the traditional category of "setting" is not indigenous to stories in the same way that the other schematic properties are. In this case, philosophy rather than psychology or literary criticism is helpful in interpreting the data: because psychology is an empirical science, it is skillful in accumulating data, but philosophical speculation and analysis are often the means of illuminating that data. The data from this study seem to evoke Kant's position that time and space are more primitive dimensions of human thought rather than merely elements of stories. As a result of this insight, "setting" becomes an operative schematic component of stories only to the extent that time and place permit pertinent inferences concerning the characters' alternatives.

The data suggest that stories vary in "schematic density." One of the most interesting serendipitous findings of the study involved what the researcher has called "schematic density." As a property of stories, schematic density concerns the ratio of schematic content to total content, and stories may be classified on a continuum from schematically dense to schematically diffuse. As yet, it remains to develop mechanisms for measuring the relative density of stories, but the responses of the subjects in this experiment suggest the possibility that comparing length of recall with original length of story may provide a tentative measure. Stories high in schematic density seem to elicit recalls which are longer than the recalls of stories of similar length but of lower density. Investigating the reality of this apparently unrecognized characteristic of stories will undoubtedly provide challenges for future research.

In summary, these experimental observations have confirmed many of the intuitive insights of literary criticism while revising some others. The integration of philosophy, literary criticism, and experimental psychology has resulted in an improved understanding of the story genre itself as well as of the interaction process of readers with stories.

Implications

The implications of the study are numerous, both for future research and for educational application. It has already been pointed out that the notion of "schematic density" as a property of stories invites the attention of empirical studies. It is clear that insights which promote a greater understanding of the story genre can only benefit both the

researcher and the teacher. Further work in the area of cross-cultural studies such as that by Steffensen, Joag-Dev, and Anderson (1979) may also reveal new insights into how schemata are derived by individuals and clarify the role that culture plays in this derivation. Another avenue of investigation concerns whether the mode of presentation affects the operation of story schemata and, if so, how. Does an individual's schema differ, for example, for stories which he/she hears rather than reads?

All researchers into schemata phenomena would seem to agree that, while some persons' schemata are not only more sophisticated but also more flexible than those of others in accommodating approximations (i.e., specific situations which are inexact examples of the general pattern), there must be some limit to the degree to which a given schema can flex to incorporate such cases. It is apparent, that is, there is a point beyond which the schema no longer applies and, thus, rejects the test case as an instance of that schema. Determining such a point insofar as story schemata are concerned may prove to be a valuable insight into the general understanding of the comprehension of literature as well as the teaching of it. Does the functioning story schema rebel when confronted with a story by Kafka or Barthelme, in which the correspondence between slot and filler is only marginal? Or can it adapt automatically to deal with such anomalies, or can it be taught such adaptation? The fact that reading ability for stories differs in individuals may testify to a difference in their schemata. The question arises, whether there are specific differences which can be identified between the schema of a deficient reader and that of a

fluent reader. For example, are the schemata of more fluent readers characterized by greater flexibility than those of less fluent readers? If this is the case, how may increased flexibility be achieved? Can it be taught? McDonnell's (1978) work with students in a Title I remedial reading program seemed to demonstrate that teaching about the general structure of stories produced superior comprehension and recall even after two weeks. In any case, the transition from theory to practice will be a challenge to both researchers and educators interested in story schemata.

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Appendix: Tables

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Table 1

Subjects' Dichotomous Responses to Story Schema Slots
for All Schema Elements

Elements Contained in Answers to Generic Questions	<u>Elements Contained in Retellings</u>		
	0	1	Total
1	21	215	236
0	11	73	84
Total	32	288	320

Note: N = 320

1 indicates evidence for schema
0 indicates lack of evidence for schema

Table 2

Subjects' Dichotomous Responses to Story Schema Slots
for "Prelude to Reunion"

Elements Contained in Answers to Generic Questions	<u>Elements Contained in Retellings</u>		
	0	1	Total
1	8	49	57
0	1	30	31
Total	9	79	88

Note: N = 88

Table 3

Relationship between Length of Protocols and Length of Stories

Story	Number of Words per Story	Average Number of Words per Retelling (Standard Deviation)	Percentage of Original Length in Average Retelling
"The Foreigner"	1,316	507.2 (114.98)	38.5%
"Prelude to Reunion"	1,594	363.5 (119.56)	22.8%
"The Jewbird"	3,101	400.7 (176.28)	12.9%
"The Man of the House"	3,437	501.1 (198.65)	14.6%
Averages	2,362	443.1	18.8%

Table 4

Comparison by Elements of Schema-Supporting Responses
in Subjects' Retellings and Generic Answers

Element	Schema-Supporting Responses	
	Retellings	Generic Answers
1. Protagonist	100.0%	87.5%
2. Location	90.0%	97.5%
3. Time	60.0%	85.0%
4. Exposition	95.0%	82.5%
5. Initial Incident	97.5%	72.5%
6. Conflict	100.0%	70.0%
7. Climax	92.5%	50.0%
8. Denouement	85.0%	45.0%